

AMENDMENT TO THE CLAIMS

1. (currently amended) A method for ~~diagnosing~~ monitoring and diagnosing the health of a braking system ~~using a system including a radio-based hand-held analyzer, at least one radio-based feed valve, and at least one mobile data unit, for a railroad train comprising a plurality of rolling stock vehicles, the braking system including a brake pipe extending the length of the train, with a portion of the braking system being associated with each rolling stock vehicle, such portion comprising at least one brake pipe section, a one reservoir for air under pressure, and at least one brake cylinder, wherein the brake pipe section connects to the reservoir, the brake cylinder and the radio-based feed valve, and the hand-held radio-based analyzer communicates with the mobile data unit and the radio-based feed valve powered by air in the reservoir, and a feed valve for controlling the flow of air from the reservoir into the brake cylinder on each rolling stock vehicle, and the feed valve on a plurality of rolling stock vehicles having a radio-based transmitter/receiver, receiving data indicative of the operation of a respective portion of the brake system, for transmitting data indicative of the operation of the respective portion of the braking system associated with each rolling stock vehicle, said method comprising:~~

providing a radio-based hand-held transmitter/receiver having a processor for analyzing data;

retrieving brake system data and information from at least one radio-based feed valve each feed valve transmitter/receiver on the train through radio communications between each feed valve transmitter/receiver and the hand-held radio analyzer transmitter/receiver using the a hand-held analyzer;

interpreting the retrieved data and information pertaining to a functional status of the portion of the braking system associated with each rolling stock vehicle; and

performing a maintenance functions function on the brake system for the train based on the interpretation of the data and information for the portion of the brake system for each rolling stock vehicle.

2. (original) A method in accordance with Claim 1 wherein the feed valve includes a sensor for sensing air pressure in the brake pipe section, and a first processor for processing data, retrieving brake system data comprising:

utilizing the sensor to measure air pressure in the brake pipe section; and

utilizing the first processor to compile brake system data indicative of an operational state of at least one of the brake pipe section, the reservoir and the brake cylinder, based on the measured air pressure.

3. (original) A method in accordance with Claim 2 wherein the hand-held analyzer includes a user interface for inputting data and commands to the hand-held analyzer, retrieving brake system data further comprising:

utilizing the user interface to allow a user to create a command to query the feed valve; and

communicating the query to the feed valve using the hand-held analyzer.

4. (original) A method in accordance with Claim 3 wherein retrieving brake system data further comprises communicating brake system data from the feed valve to the hand-held analyzer in response to the query.

5. (original) A method in accordance with Claim 4 wherein the hand-held analyzer further includes a display for viewing information and data, interpreting the retrieved data comprising the step of viewing the brake system data received from the feed valve on the display.

6. (original) A method in accordance with Claim 5 wherein interpreting the retrieved data further comprises diagnosing the operational status of the brake system based on the brake system data received from the feed valve and view on the display.

7. (original) A method in accordance with Claim 6 wherein performing maintenance functions comprises implementing repair procedures to correct brake system malfunctions indicated by diagnosing the operation status of the brake system.

8. (original) A method in accordance with Claim 7 wherein the hand-held analyzer includes a second processor and a memory module, performing maintenance functions further comprising:

utilizing the user interface to input general information to the hand-held analyzer; and

storing the general information and the brake system data in the memory module.

9. (currently amended) A method in accordance with Claim 8 wherein performing maintenance functions further comprises downloading the stored general information and brake system data to the ~~mobile~~ data unit.

10. (original) A method in accordance with Claim 9 wherein performing maintenance functions further comprises posting the downloaded general information and brake system data to web page.

11. (currently amended) A system for diagnosing the health of a braking equipment for a railroad train comprising a plurality of rolling stock vehicles, wherein the braking equipment includes a brake pipe extending the length of the train, with a portion of the braking equipment being associated with each rolling stock vehicle, such portion comprising at least one brake pipe section connected to a reservoir of pressurized air, and at least one brake cylinder powered by air in the reservoir, and a radio transmitter/receiver equipped feed valve for controlling the flow of air from said reservoir into said brake cylinder on a plurality of said rolling stock vehicles, said system comprising:

a radio-based hand-held analyzer;

~~at least one radio-based feed valve connected to the brake pipe section and configured to communicate with said hand-held analyzer; and~~

at least one radio-based transmitter/receiver on each radio equipped feed valve receiving data indicative of the operation of the braking equipment for transmitting data indicative of the operation of the portion of the braking equipment associated with each of the

rolling stock vehicles, said transmitter/receiver configured to communicate with said hand-held analyzer; and

at least one ~~mobile~~ data unit configured to communicate with the hand-held analyzer.

12. (currently amended) A system in accordance with Claim 11 wherein said hand-held analyzer configured to retrieve brake equipment data indicative of an operational state of ~~at least~~ at least one of the brake pipe section, the reservoir and the brake cylinder, from said feed valve.

13. (original) A system in accordance with Claim 12, said feed valve including a sensor for sensing air pressure in the brake pipe section, and a first processor for processing air pressure data, wherein to retrieve brake equipment data, said feed valve configured to:

utilize the sensor to measure air pressure in the brake pipe section; and

utilize the first processor to compile brake equipment data indicative of an operational state of at least at least one of the brake pipe section, the reservoir and the brake cylinder.

14. (original) A system in accordance with Claim 13, said hand-held analyzer including a display for viewing information, and a user interface for inputting data and commands, wherein to retrieve brake equipment data, said hand-held analyzer configured to:

allow a user to input a command to query the feed valve, using the user interface; and

communicate the query to said feed valve.

15. (original) A system in accordance with Claim 14 wherein said feed valve configured to communicate brake equipment data to said hand-held analyzer in response to the query, and said hand-held analyzer further configured to display the brake equipment data received from said feed valve, such that a user can diagnose the operational status of the brake equipment based on the data received and displayed.

16. (original) A system in accordance with Claim 15, wherein said hand-held analyzer further includes a second processor and a memory module, said hand-held analyzer further configured to:

compile the brake equipment data utilizing the second processor; and

store the brake equipment data in the memory module.

17. (original) A system in accordance with Claim 16 wherein said hand-held analyzer further configured to:

receive general information input using the user interface; and

store the general information in the memory module.

18. (currently amended) A system in accordance with Claim 17 wherein said hand-held analyzer further configured to download the brake equipment data and the general information to said ~~mobile~~ data unit.

19. (currently amended) A system in accordance with Claim 18 wherein said ~~mobile~~ data unit configured to post the brake equipment data and the general information on a web page.

20. (currently amended) A hand-held analyzer for testing and diagnosing the health of a brake system for a railroad train comprising a plurality of rolling stock vehicles, the brake system including a radio-based feed valve brake pipe extending the length of said train, with a portion of the brake system being associated with each rolling stock vehicle, the portion comprising at least one brake pipe section, one reservoir, at least one brake cylinder powered by air in the reservoir, and a feed valve for controlling the flow of air from the reservoir into the brake cylinder on each rolling stock vehicle, and a radio-based transmitter/receiver on a plurality of feed valves receiving data indicative of the operation of the brake system for transmitting data indicative of the operation of the portion of the brake system associated with each respective rolling stock vehicle, said hand-held analyzer comprising a radio based hand-held transmitter/receiver having a processor for analyzing data, an antenna for communicating with the feed valve transmitter/receiver, a user interface for inputting data and commands to be communicated to the feed valve transmitter/receiver,

and a display for viewing data received from the feed valve transmitter/receiver, said hand-held analyzer configured to:

utilize said user interface to input a command to query the feed valve transmitter/receiver for brake system data indicative of an operational state of the said brake system;

transmit the query to ~~query~~ the feed valve transmitter/receiver utilizing said antenna;

receive the brake system data from said feed valve transmitter/receiver via radio communications indicative of an operational state of the brake system utilizing said antenna; and

display the brake system data on said display.

21. (original) A hand-held analyzer in accordance with Claim 20 further comprising a processor for executing functions of said hand-held analyzer and memory module for storing information and data, said hand-held analyzer further configured to:

receive general information input using said user interface;

compile the general information and brake system data utilizing said processor; and

store the compiled general information and brake system data in said storage module.

22. (currently amended) A hand-held analyzer in accordance with Claim 21 further configured to download the stored general information and brake system data to a ~~mobile~~ data unit.